

**REPETITIVE HIGH-DENSITY PACKING MECHANISMS FOR
ARRANGING SUSPENDED LENGTHS OF ELONGATED ITEMS IN A
DESIRED ORIENTATION AND ASSOCIATED METHODS**

Related Applications

This application is a divisional of U.S. Application Serial No. 10/171,862, *st pending*
filed June 13, 2002, the contents of which are hereby incorporated by reference as if
recited in full herein.

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Field of the Invention

The present invention relates to handling of products within processing
facilities and is particularly suitable for loading lengths of products such as elongated
extruded or stuffed food products on carriers in food preparation and production
systems.

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Background of the Invention

Conventionally, extruded or stuffed food products such as pasta, dough, and
meats such as hot dogs, links, or sausages, can be processed so that the desired food
material is extruded or mixed and prepared, then propelled through a "stuffer
machine" that includes a stuffing nozzle, extrusion machine, or co-extrusion machine.
15 In operation, in certain food items, as the food moves through the stuffing nozzle or
extrusion head, a natural or synthetic casing is disposed about and/or deposited or
wrapped around the external surface of the food material to form a continuous length
of encased elongated food product. To form certain products (such as hotdogs and
sausages), the casing can be twisted, tied, nipped, and/or crimped at certain intervals,
20 forming a chain-like string or strand of encased food product. Extruders and co-
extruders are available from various commercial manufacturers including, but not
limited to, Townsend Engineering Co., located in Des Moines, Iowa. Stuffers are
available from various commercial manufacturers including, but not limited to,
HITEC Food Equipment, Inc., located in Elk Grove Village, Illinois, Townsend
25 Engineering Co., located in Des Moines, Iowa, Robert Reiser & Co., Inc., located in
Canton, MA, and Handtmann, Inc., located in Buffalo Grove, Illinois. Exemplary
stuffer and/or linker apparatus are also described in U.S. Patent Nos. 5,788,563;